"PATENT"

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of
Alan Gary Blahey et al

U. S. Serial No. 09/806,873

Filed: April 3, 2001

LONG LIFE GAS ENGINE OIL AND ADDITIVE SYSTEM

Before the Examiner
Cephia D. Toomer

Confirmation Number: 6495

Group Art Unit: 1714

Family Number: P1998J096 US2

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

Appeal Brief Under 37 CFR §1.92

Real Party in Interest

The invention claimed in this application is assigned to ExxonMobil Research and Engineering Company.

CERTIFICATION OF FACSIMILE TRANSMISSION
I hereby certify that this paper is being facsimile transmitted to the Commissioner for Patents facsimile number 1-703-872-9311 on the date shown below.

Jacqueline Wright — Type or print name of person signing certification
Signature
10/8/04 — Date

Related Appeals And Interferences

There are no other appeals or interferences which will directly affect or be affected by or have a bearing on the Board's decision in this appeal.

Status of the Claims

This application was filed with 10 claims. Of those claims 2, 3, 7 and 8 were cancelled; however, new claims 11 to 14 were added.

Claims 1, 4-6 and 9-14 are pending in the application and stand rejected under 35 USC 103(a).

The rejection of claims 1, 4-6 and 9-14 is appealed.

Status of Amendments

No amendments were filed subsequent to the final rejection.

Summary of the Invention

The invention is concerned with enhancing the life of a gas engine lubricating oil as evidenced by reduction in viscosity increase, oxidation, nitration, TAN increase and TBN depletion. (Page 4, lines 5-7). Specifically both a long life gas engine oil composition (claims 1, 4, 11 and 12) and a method of enhancing the life of gas engine oils (claims 6, 9, 13 and 14) are claimed.

Certain characteristics are central to both the composition and method claims. These are:

(1) The base lubricating oil, which is a synthetic, hydrocracked or solvent refined oil or mixtures thereof (original claims 2 and 7 and the examples) has a

viscosity of 9 to 13 cSt at 100°C (page 4, line 22) and is free of an oil having a viscosity of 20 cSt or more at 100°C (page 4, line 24);

(2) The antioxidant, which is a phenolic antioxidant is present at 0.1 to 2 vol.% (page 9, line 20) and devoid of aminic antioxidants (page 9, lines 22-23);

(3) The detergent system, which is a low ash gas engine additive system has a TBN of about 50 to 300 (page 11, line 4); and

(4) The viscosity index improver, which is present in an amount sufficient to increase the viscosity of the oil to about 13.2 cSt at 100°C but insufficient to have the resultant formulation considered to be a multigrade oil (page 14, lines 8-12) is present in the range of about 0.1 to 3 vol.%. (page 10, line 19).

Issues

Whether the Examiner improperly rejected claims 1, 4-6 and 9-14 under 35 USC 103(a).

Grouping of the Claims

Appellants group the claims as follows:

Group I, having claims 1, 4, 11 and 12.

Group II, having claims 6, 9[1], 13 and 14.

Argument

(1) The Examiner improperly rejected claims 1, 4-6 and 9-14 under 35 USC 103(a) as unpatentable over Blahey (U.S. 5,726,133).

[1] Claim 9 incorrectly depends from claim 12 and should depend from claim 13.

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(A) The Group I Claims

Blahey is directed toward a low gas engine oil the key feature of which is the use of a mixture of alkali metal or alkaline earth metal salt detergents in which one has a TBN of 250 or less and the other has a TBN more neutral than the former. (Col. 2, lines 35-48). The composition of Blahey have a target viscosity of 13.5 cSt at 100°C and contains a 1200 SN oil (Examples) which has a viscosity greater than 20 cSt at 100°C (Appellants' specification, page 14, line 11), may contain an amine antioxidant (col. 4, line 28) and may contain up to 15 vol.% a viscosity index improver (VII) to impart multifunctional viscosity properties to the finished oil (col. 4, lines 58-60).

Appellants' composition excludes the amine antioxidant, the 1200 SN oil and the multi viscosity rendering amount of the VII. Importantly, the exclusion of these ingredients are not at all obvious.

Blahey discloses oil compositions that have target viscosities of 13.5 cSt at 100°C and which employ 1200 SN oil to reach those viscosities. Appellants submit that one with ordinary skill in the art would not consider using a VII to increase the viscosity of a base oil to 13.2 cSt at 100°C as do appellants.

Blahey's compositions may include a VII but its presence is to impart multifunctional viscosity properties. Although Blahey does not disclose a lower limit on the amount of VII that might be used in his compositions one with ordinary skill in the art understands that to provide an oil with multi-grade properties at least 6% of a VII need be added. This amount is consistent with the high upper ranges disclosed by Blahey. In contrast, appellants use only sufficient VII to increase the base formulation to a viscosity of 13.2 cSt at 100°C.

Clearly Blahey does not render appellants' composition obvious.

(B) The Group II Claims

Blahey discloses a method for enhancing the resistance of a gas engine oil to oxidation, nitration and deposits formation by adding to the oil a specific combination of alkali or alkaline earth metal salt detergents (col. 9, lines 43-53). Appellants, on the other hand, have discovered that the life of gas engine oils can be enhanced by adding to an oil that does not contain an amine antioxidant and a base oil having a viscosity greater than 20 cSt at 100°C, an amount of a VII sufficient to increase the viscosity of the base formulation to about 13.2 cSt at 100°C. There is absolutely no such disclosure or suggestion of that invention in Blahey.

2. The Examiner improperly rejected claims 1, 4, 6, 9, 10, 12 and 14 under 35 USC 103(a) as unpatentable over Inoue (U.S. 5,744,430).

(A) The Group I Claims

Inoue is concerned with improving the friction reducing properties of a motor vehicle oil to lower fuel consumption. According to Inoue the oil composition taught by him "... has a synergistic effect among the additives and thereby exhibits a low friction factor..." (col. 17, lines 34-36). Some of the components of his engine oil are:

(a) a base oil having a viscosity of 2 to 8 mm^2/s at 100°C i.e. 2 to 8 cSt;

(b) calcium salicylate detergent to provide 0.5 to 1.2 wt% ash;

(c) a ZDDP antiwear additive that provides 0.04 to 0.10 wt% P; and

(d) a VII to provide that the viscosity of the composition be in the range of 5.6 to 12.5 mm^2/s at 100°C, i.e. 5.6 to 12.5 cSt (all of the above are in claim 1).

The base oil in appellants' composition has a viscosity of 9 to 13 cSt at 100°C and only enough VII to raise the viscosity to 13.5 cSt at 100°C. The detergent in appellants' composition provide 0.1 to 0.6 wt% ash. Also the ZDDP antiwear additive is present in the range of 0.2 to 0.5 vol.% which corresponds to 0.201 to 0.504 mass% phosphorous[2].

Importantly, Inoue clearly states that "...when one or more of the additives are lacking or their amounts and the total amounts of aromatics do not fall within the scope of he present invention, an excellent engine oil with good fuel consumption maintained for a long period of time can not be obtained." (Col. 17, lines 30-34 - Emphasis added).

Clearly there is no motivation to modify the composition of Inoue to come to appellants' composition. Inoue fails to render appellants' invention obvious.

(B) The Group II Claims

Appellants' Group II Claims are directed toward a method of enhancing the life of gas engine oils as evidenced by reduction in viscosity increase, oxidation, nitration, TAN increase and TBN depletion. There is absolutely nothing in Inoue that would suggest to one how to achieve such a result let alone how appellants achieved such a result. What Inoue teaches is that using a different viscosity base oil, a different amount of detergent and a different amount of VII and antiwear compound than he is not going to be successful.

---

[2] The calculations are as follows:

The density of the ZDDP used in the Oloa 1255 (NGEO additive system B) is 1.1203 g/ml and contains 8% by mass elemental phosphorous.

As per our claims, a maximum of 0.5 vol% ZDDP in 100ml finished product therefore contains .56 g ZDDP (0.5 ml ZDDP x 1.1203 g ZDDP/ml ZDDP).

100 ml of finished fluid weighs 88.36 g (density of the finished oil is .8836 g/ml).

Thus the weight percent of ZDDP is .56 g ZDDP/83.36 g finished product = 0.63 mass% ZDDP.

Since this ZDDP has 8% elemental phosphorous, the elemental phosphorous in the final product is 0.63 g ZDDP x 0.08 g P/g ZDDP = 0.504 g P.

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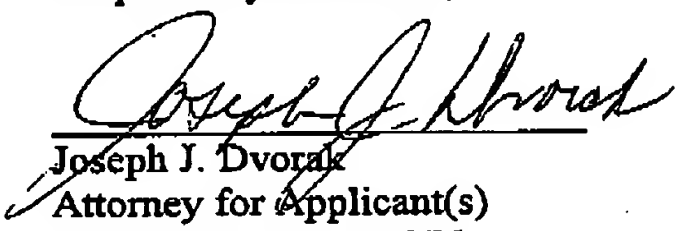
Inoue teaches away from appellants' invention and fails to render it obvious.

Conclusion

For the reasons set forth above, appellants' submit that the claims on appeal are patentable over the cited art and appellants respectfully request the Board to reverse the Examiner's rejections.

Respectfully submitted,



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[X] Pursuant to 37 CFR 1.34(a)

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JJD:jdw
10/6/04

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Appendix

1. A long life gas engine oil comprising a major amount of an oil of lubricating viscosity and a minor amount of additives comprising phenolic anti oxidants, a low ash gas engine oil detergent system having a TBN of about 50 to about 300, from about 0.05 to about 1.5 vol% of antiwear additives and viscosity index improver which does not contain aminic anti oxidant, wherein the oil of lubricating viscosity has a viscosity of between 9 to 13 cSt at 100°C, said oil of lubricating viscosity being a synthetic, hydrocracked or solvent refined oil or mixtures thereof, and which oil of lubricating viscosity does not contain a base stock having a viscosity of 20 cSt or higher at 100°C, wherein the phenolic anti oxidant is present in an amount in the rang eof about 0.1 to 2 vol% and the viscosity index improver is present in an amount sufficient to increase the viscosity of the engine oil to about 13.2 cSt at 100°C and wherein said amount is in the range of about 0.1 to 3 vol%, the antiwear additive is present in the range of about 0.2 to 0.5 vol%, and wherein the gas engine oil has a low ash content in the range of 0.1 to 0.6 wt%.

4. The long life gas engine oil of claim 10 wherein the phenolic anti oxidant is present in an amount in the range of about 0.3 to 1.75 vol% and the viscosity index improver is present in an amount in the range of about 0.2 to 2 vol%.

6. A method for enhancing the life of gas engine oils as evidenced by a reduction in viscosity increase, oxidation, nitration, TAN increase, and TBN depletion, comprising adding to a gas engine oil base stock having a viscosity of 100°C of from 9 to 13 cSt, the base stock being a synthetic, hydrocracked or solvent refined oil or mixture thereof but which base stock does not contain a base stock having a viscosity of 20 cSt or higher at 100°C, a minor amount of an anti oxidant in the range of about 0.1 to 2 vol%, from about 0.2 to about 0.5 vol% of antiwear additives, and a minor amount of a viscosity index improver in the range of about 0.1 to 3 vol% which does not contain aminic anti oxidants and, wherein the anti oxidant is selected from the group

consisting of phenolic anti oxidants, and a minor amount of a low ash gas engine oil detergent system having a TBN of about 50 to about 300 wherein the gas engine oil has a low ash content in the range of 0.1 to 0.6 wt%.

9. The method of claim 12 wherein the phenol anti oxidant is added to the lubricating oil in an amount in the range of about 0.3 to 1.75 vol% and the viscosity index improver is added to the lubricating oil in an amount in the range of about 0.2 to 2 vol%.

11. The oil of claim 1 wherein the oil of lubricating viscosity is a mixture of a hydrocracked oil and a solvent refined oil.

12. The oil of claim 4 wherein the detergent system is a mixture of detergent comprising at least one first alkali or alkaline earth metal salt having a TBN below about 250 and at least one second alkali or alkaline earth metal salt having a TBN of about one-half or less of the first salt.

13. The method of claim 6 wherein the basestock is a mixture of a hydrocracked oil and a solvent refined oil.

14. The method of claim 9 wherein the detergent system is a mixture of detergents comprising at least one first alkali or alkaline earth metal salt having a TBN below about 250 and at least one second alkali or alkaline earth metal salt having a TBN of about one-half or less of the first salt.

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Whether the Examiner improperly rejected claims 1, 4-6 and 9-14 under 35 USC 103(a).

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Appellants group the claims as follows:

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Inoue is concerned with improving the friction reducing properties of a motor vehicle oil to lower fuel consumption. According to Inoue the oil composition taught by him "... has a synergistic effect among the additives and thereby exhibits a low friction factor..." (col. 17, lines 34-36). Some of the components of his engine oil are:

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(b) calcium salicylate detergent to provide 0.5 to 1.2 wt% ash;

(c) a ZDDP antiwear additive that provides 0.04 to 0.10 wt% P; and

(d) a VII to provide that the viscosity of the composition be in the range of 5.6 to 12.5 mm^2/s at 100°C, i.e. 5.6 to 12.5 cSt (all of the above are in claim 1).

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Importantly, Inoue clearly states that "...when one or more of the additives are lacking or their amounts and the total amounts of aromatics do not fall within the scope of he present invention, an excellent engine oil with good fuel consumption maintained for a long period of time can not be obtained." (Col. 17, lines 30-34 - Emphasis added).

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The density of the ZDDP used in the Oloa 1255 (NGEO additive system B) is 1.1203 g/ml and contains 8% by mass elemental phosphorous.

As per our claims, a maximum of 0.5 vol% ZDDP in 100ml finished product therefore contains .56 g ZDDP (0.5 ml ZDDP x 1.1203 g ZDDP/ml ZDDP).

100 ml of finished fluid weighs 88.36 g (density of the finished oil is .8836 g/ml).

Thus the weight percent of ZDDP is .56 g ZDDP/83.36 g finished product = 0.63 mass% ZDDP.

Since this ZDDP has 8% elemental phosphorous, the elemental phosphorous in the final product is 0.63 g ZDDP x 0.08 g P/g ZDDP = 0.504 g P.

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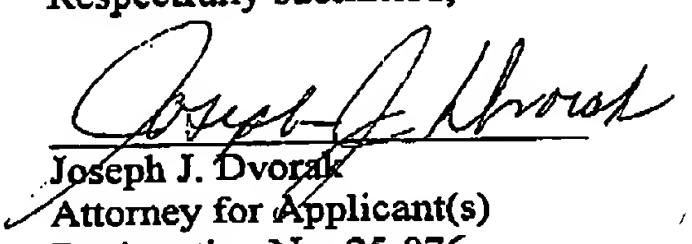

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Appendix

1. A long life gas engine oil comprising a major amount of an oil of lubricating viscosity and a minor amount of additives comprising phenolic anti oxidants, a low ash gas engine oil detergent system having a TBN of about 50 to about 300, from about 0.05 to about 1.5 vol% of antiwear additives and viscosity index improver which does not contain aminic anti oxidant, wherein the oil of lubricating viscosity has a viscosity of between 9 to 13 cSt at 100°C, said oil of lubricating viscosity being a synthetic, hydrocracked or solvent refined oil or mixtures thereof, and which oil of lubricating viscosity does not contain a base stock having a viscosity of 20 cSt or higher at 100°C, wherein the phenolic anti oxidant is present in an amount in the rang eof about 0.1 to 2 vol% and the viscosity index improver is present in an amount sufficient to increase the viscosity of the engine oil to about 13.2 cSt at 100°C and wherein said amount is in the range of about 0.1 to 3 vol%, the antiwear additive is present in the range of about 0.2 to 0.5 vol%, and wherein the gas engine oil has a low ash content in the range of 0.1 to 0.6 wt%.

4. The long life gas engine oil of claim 10 wherein the phenolic anti oxidant is present in an amount in the range of about 0.3 to 1.75 vol% and the viscosity index improver is present in an amount in the range of about 0.2 to 2 vol%.

6. A method for enhancing the life of gas engine oils as evidenced by a reduction in viscosity increase, oxidation, nitration, TAN increase, and TBN depletion, comprising adding to a gas engine oil base stock having a viscosity of 100°C of from 9 to 13 cSt, the base stock being a synthetic, hydrocracked or solvent refined oil or mixture thereof but which base stock does not contain a base stock having a viscosity of 20 cSt or higher at 100°C, a minor amount of an anti oxidant in the range of about 0.1 to 2 vol%, from about 0.2 to about 0.5 vol% of antiwear additives, and a minor amount of a viscosity index improver in the range of about 0.1 to 3 vol% which does not contain aminic anti oxidants and, wherein the anti oxidant is selected from the group

consisting of phenolic anti oxidants, and a minor amount of a low ash gas engine oil detergent system having a TBN of about 50 to about 300 wherein the gas engine oil has a low ash content in the range of 0.1 to 0.6 wt%.

9. The method of claim 12 wherein the phenol anti oxidant is added to the lubricating oil in an amount in the range of about 0.3 to 1.75 vol% and the viscosity index improver is added to the lubricating oil in an amount in the range of about 0.2 to 2 vol%.

11. The oil of claim 1 wherein the oil of lubricating viscosity is a mixture of a hydrocracked oil and a solvent refined oil.

12. The oil of claim 4 wherein the detergent system is a mixture of detergent comprising at least one first alkali or alkaline earth metal salt having a TBN below about 250 and at least one second alkali or alkaline earth metal salt having a TBN of about one-half or less of the first salt.

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Blahey is directed toward a low gas engine oil the key feature of which is the use of a mixture of alkali metal or alkaline earth metal salt detergents in which one has a TBN of 250 or less and the other has a TBN more neutral than the former. (Col. 2, lines 35-48). The composition of Blahey have a target viscosity of 13.5 cSt at 100°C and contains a 1200 SN oil (Examples) which has a viscosity greater than 20 cSt at 100°C (Appellants' specification, page 14, line 11), may contain an amine antioxidant (col. 4, line 28) and may contain up to 15 vol.% a viscosity index improver (VII) to impart multifunctional viscosity properties to the finished oil (col. 4, lines 58-60).

Appellants' composition excludes the amine antioxidant, the 1200 SN oil and the multi viscosity rendering amount of the VII. Importantly, the exclusion of these ingredients are not at all obvious.

Blahey discloses oil compositions that have target viscosities of 13.5 cSt at 100°C and which employ 1200 SN oil to reach those viscosities. Appellants submit that one with ordinary skill in the art would not consider using a VII to increase the viscosity of a base oil to 13.2 cSt at 100°C as do appellants.

Blahey's compositions may include a VII but its presence is to impart multifunctional viscosity properties. Although Blahey does not disclose a lower limit on the amount of VII that might be used in his compositions one with ordinary skill in the art understands that to provide an oil with multi-grade properties at least 6% of a VII need be added. This amount is consistent with the high upper ranges disclosed by Blahey. In contrast, appellants use only sufficient VII to increase the base formulation to a viscosity of 13.2 cSt at 100°C.

Clearly Blahey does not render appellants' composition obvious.

(B) The Group II Claims

Blahey discloses a method for enhancing the resistance of a gas engine oil to oxidation, nitration and deposits formation by adding to the oil a specific combination of alkali or alkaline earth metal salt detergents (col. 9, lines 43-53). Appellants, on the other hand, have discovered that the life of gas engine oils can be enhanced by adding to an oil that does not contain an amine antioxidant and a base oil having a viscosity greater than 20 cSt at 100°C, an amount of a VII sufficient to increase the viscosity of the base formulation to about 13.2 cSt at 100°C. There is absolutely no such disclosure or suggestion of that invention in Blahey.

2. The Examiner improperly rejected claims 1, 4, 6, 9, 10, 12 and 14 under 35 USC 103(a) as unpatentable over Inoue (U.S. 5,744,430).

(A) The Group I Claims

Inoue is concerned with improving the friction reducing properties of a motor vehicle oil to lower fuel consumption. According to Inoue the oil composition taught by him "... has a synergistic effect among the additives and thereby exhibits a low friction factor..." (col. 17, lines 34-36). Some of the components of his engine oil are:

(a) a base oil having a viscosity of 2 to 8 mm^2/s at 100°C i.e. 2 to 8 cSt;

(b) calcium salicylate detergent to provide 0.5 to 1.2 wt% ash;

(c) a ZDDP antiwear additive that provides 0.04 to 0.10 wt% P; and

(d) a VII to provide that the viscosity of the composition be in the range of 5.6 to 12.5 mm^2/s at 100°C, i.e. 5.6 to 12.5 cSt (all of the above are in claim 1).

The base oil in appellants' composition has a viscosity of 9 to 13 cSt at 100°C and only enough VII to raise the viscosity to 13.5 cSt at 100°C. The detergent in appellants' composition provide 0.1 to 0.6 wt% ash. Also the ZDDP antiwear additive is present in the range of 0.2 to 0.5 vol.% which corresponds to 0.201 to 0.504 mass% phosphorous[2].

Importantly, Inoue clearly states that "...when one or more of the additives are lacking or their amounts and the total amounts of aromatics do not fall within the scope of he present invention, an excellent engine oil with good fuel consumption maintained for a long period of time can not be obtained." (Col. 17, lines 30-34 - Emphasis added).

Clearly there is no motivation to modify the composition of Inoue to come to appellants' composition. Inoue fails to render appellants' invention obvious.

(B) The Group II Claims

Appellants' Group II Claims are directed toward a method of enhancing the life of gas engine oils as evidenced by reduction in viscosity increase, oxidation, nitration, TAN increase and TBN depletion. There is absolutely nothing in Inoue that would suggest to one how to achieve such a result let alone how appellants achieved such a result. What Inoue teaches is that using a different viscosity base oil, a different amount of detergent and a different amount of VII and antiwear compound than he is not going to be successful.

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[2] The calculations are as follows:

The density of the ZDDP used in the Oloa 1255 (NGEO additive system B) is 1.1203 g/ml and contains 8% by mass elemental phosphorous.

As per our claims, a maximum of 0.5 vol% ZDDP in 100ml finished product therefore contains .56 g ZDDP (0.5 ml ZDDP x 1.1203 g ZDDP/ml ZDDP).

100 ml of finished fluid weighs 88.36 g (density of the finished oil is .8836 g/ml).

Thus the weight percent of ZDDP is .56 g ZDDP/83.36 g finished product = 0.63 mass% ZDDP.

Since this ZDDP has 8% elemental phosphorous, the elemental phosphorous in the final product is 0.63 g ZDDP x 0.08 g P/g ZDDP = 0.504 g P.

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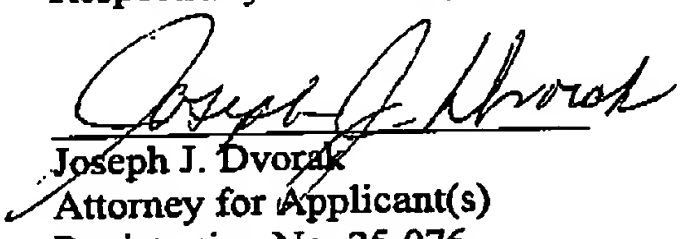
Inoue teaches away from appellants' invention and fails to render it obvious.

Conclusion

For the reasons set forth above, appellants' submit that the claims on appeal are patentable over the cited art and appellants respectfully request the Board to reverse the Examiner's rejections.

Respectfully submitted,



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[X] Pursuant to 37 CFR 1.34(a)

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10/6/04

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Appendix

1. A long life gas engine oil comprising a major amount of an oil of lubricating viscosity and a minor amount of additives comprising phenolic anti oxidants, a low ash gas engine oil detergent system having a TBN of about 50 to about 300, from about 0.05 to about 1.5 vol% of antiwear additives and viscosity index improver which does not contain aminic anti oxidant, wherein the oil of lubricating viscosity has a viscosity of between 9 to 13 cSt at 100°C, said oil of lubricating viscosity being a synthetic, hydrocracked or solvent refined oil or mixtures thereof, and which oil of lubricating viscosity does not contain a base stock having a viscosity of 20 cSt or higher at 100°C, wherein the phenolic anti oxidant is present in an amount in the rang eof about 0.1 to 2 vol% and the viscosity index improver is present in an amount sufficient to increase the viscosity of the engine oil to about 13.2 cSt at 100°C and wherein said amount is in the range of about 0.1 to 3 vol%, the antiwear additive is present in the range of about 0.2 to 0.5 vol%, and wherein the gas engine oil has a low ash content in the range of 0.1 to 0.6 wt%.

4. The long life gas engine oil of claim 10 wherein the phenolic anti oxidant is present in an amount in the range of about 0.3 to 1.75 vol% and the viscosity index improver is present in an amount in the range of about 0.2 to 2 vol%.

6. A method for enhancing the life of gas engine oils as evidenced by a reduction in viscosity increase, oxidation, nitration, TAN increase, and TBN depletion, comprising adding to a gas engine oil base stock having a viscosity of 100°C of from 9 to 13 cSt, the base stock being a synthetic, hydrocracked or solvent refined oil or mixture thereof but which base stock does not contain a base stock having a viscosity of 20 cSt or higher at 100°C, a minor amount of an anti oxidant in the range of about 0.1 to 2 vol%, from about 0.2 to about 0.5 vol% of antiwear additives, and a minor amount of a viscosity index improver in the range of about 0.1 to 3 vol% which does not contain aminic anti oxidants and, wherein the anti oxidant is selected from the group

consisting of phenolic anti oxidants, and a minor amount of a low ash gas engine oil detergent system having a TBN of about 50 to about 300 wherein the gas engine oil has a low ash content in the range of 0.1 to 0.6 wt%.

9. The method of claim 12 wherein the phenol anti oxidant is added to the lubricating oil in an amount in the range of about 0.3 to 1.75 vol% and the viscosity index improver is added to the lubricating oil in an amount in the range of about 0.2 to 2 vol%.

11. The oil of claim 1 wherein the oil of lubricating viscosity is a mixture of a hydrocracked oil and a solvent refined oil.

12. The oil of claim 4 wherein the detergent system is a mixture of detergent comprising at least one first alkali or alkaline earth metal salt having a TBN below about 250 and at least one second alkali or alkaline earth metal salt having a TBN of about one-half or less of the first salt.

13. The method of claim 6 wherein the basestock is a mixture of a hydrocracked oil and a solvent refined oil.

14. The method of claim 9 wherein the detergent system is a mixture of detergents comprising at least one first alkali or alkaline earth metal salt having a TBN below about 250 and at least one second alkali or alkaline earth metal salt having a TBN of about one-half or less of the first salt.

"PATENT"

APPEAL BRIEF TRANSMITTAL FORM

In re application of: Alan Gary Blahey et al
U.S. Serial No.: 09/806,873 [810,034]
Filed: April 3, 2001
For: LONG LIFE GAS ENGINE OIL AND ADDITIVE SYSTEM

) Before the Board of
) Patent Appeals and Interferences
) Examiner: Cephia D. Toomer
)
) Confirmation Number: 6495
) Group Art Unit: 1714
) Family Number: P1998J096 US2

Commissioner for Patents
Mail Stop Appeal Brief - Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

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10/8/04 — Date

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8 October 2004
DATE OF SIGNATURE

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